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(71) Applicant

Mardon Illingworth

Limited,

(United Kingdom),

Forest Works,

Coxmoor Road,

Sutton in Ashfield,

Notts NG17 5LH

(72) Inventor

Terence Peter Revill

(74) Agent and/or

Address for Service

Eric Potter and Clarkson,

14 Oxford Street,

Nottingham NG1 5BP

(54) Container sealing devices and
method of sealing containers

(57) A cap (15) has screw-thread portions (18) for screw engagement with threads (14) on a jar (11). The inner surface of the top of the cap is formed with ribs (22) and an annular sealing member (21). A frangible membrane (20) is weakly adhered to the ribs and the sealing member and is more strongly adhered to the rim (13) of the jar. The cap can be unscrewed from the jar leaving the membrane in situ sealing the jar. After removal of the membrane, the sealing member seals with the jar rim.

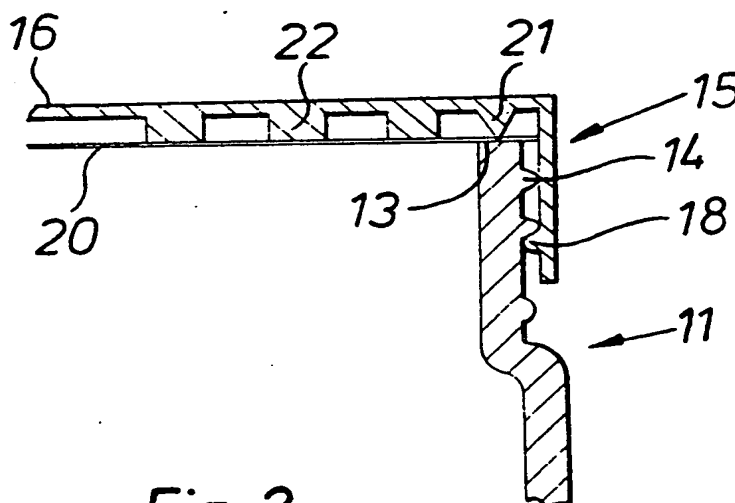


Fig. 2

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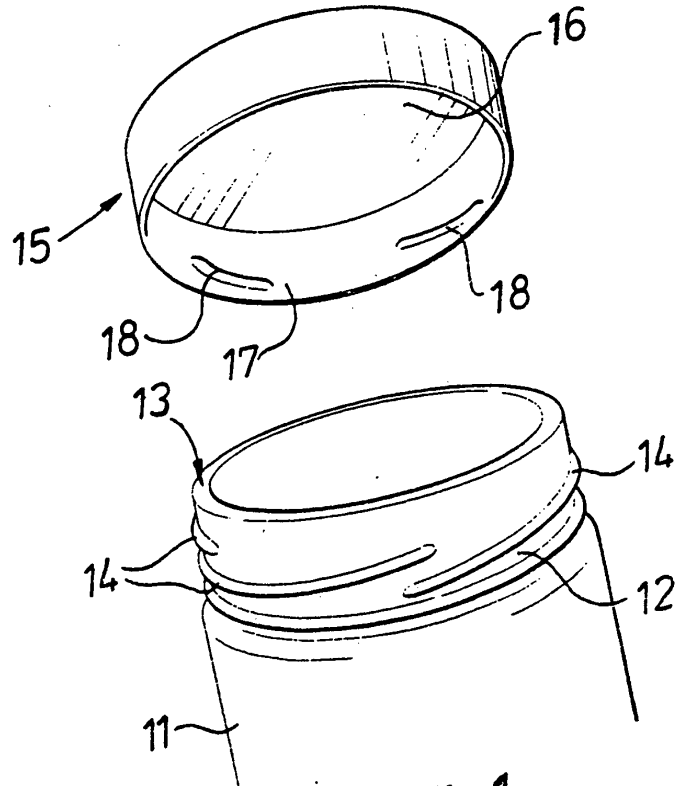


Fig. 1

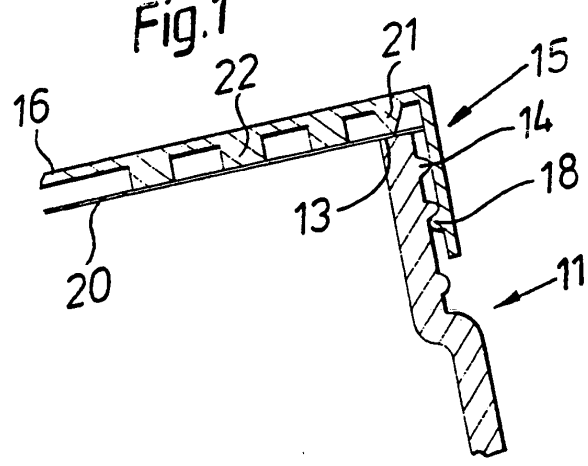


Fig. 2

SPECIFICATION

Container sealing devices and method of sealing containers

5 This invention is concerned with sealing of containers, such as jars.

Jars are commonly used for storing foodstuffs and the jar is usually closed by a cap screwed onto the jar. A cap liner is usually provided to seal with the jar rim.

10 For some foodstuffs, such as "instant" coffee, which is deliquescent, it is usual to seal the jar mouth with a frangible membrane, which is adhered to the rim. A liner is also provided and is held by formations in the cap. The membrane is ripped away for access to the

15 contents, after which sealing is effected by the liner.

A sheet of membrane material is usually adhered with a weak bond to a sheet of the liner material and discs are cut from the combined sheet to the size of the appropriate cap and jar. A disc is engaged with the

20 formations of the cap and glue is applied to the jar rim.

The cap is then screwed down, so that the membrane engages the glue. A stronger bond is provided between the membrane and the jar rim than that between the membrane and the liner and this latter bond is weaker than the grip of the liner by the cap formations. As a result, on unscrewing the cap, the liner comes away from the membrane.

The provision of a liner is expensive and it would be advantageous to dispense with the liner. This, however,

30 creates the problems of how to provide for a seal between the cap and the jar rim and how to hold the membrane (which is flexible) in the cap to permit engagement of the membrane with the jar rim for adhesion thereto, when the cap is screwed down on the jar.

In accordance with this invention, there is provided a cap having a top and a skirt adapted internally to allow repetitive engagement with and release from a container and a flexible sealing membrane for adherence to the rim of the container, wherein the membrane is weakly adhered directly to the internal face of the top of the cap. The cap preferably has a formation for sealing with the container rim when the membrane has been removed.

45 Adherence of the membrane to the cap itself presents a problem, since such caps are usually made of polypropylene to which it is difficult to provide reliably a weak bond.

50 Preferably, the material serving to adhere the membrane to the cap is a waxy material which is heat-sealed to the cap.

The invention also resides in a cap and container assembly, wherein the container has a rim and the cap has a top and a skirt, the skirt being engaged with the container for release therefrom and repetitive engagement therewith, and a sealing membrane adhered to the internal face of the top of the cap and also adhered to the container rim, the bond with the cap being weaker than the bond with the rim, whereby the cap can be removed from the container leaving the membrane adhered to the rim.

The invention also resides in a method of mounting a membrane in a cap, which cap has a top and a skirt adapted for repetitive engagement with and release from a container, said mounting being such that on engaging the cap on a container, the membrane may adhere to the container rim by means of adhesive, such that on removal of the cap, the membrane is released from the cap and remains adhered to the rim, the method comprising applying waxy material to one face of the membrane and heat-sealing the membrane directly to the interior surface of the top of the cap by means of the waxy material.

Reference is now made to the accompanying drawings, wherein:

Figure 1 shows a part of a jar and a cap adapted for attachment thereto; and

Figure 2 is a detailed view of part of the cap and the jar rim, with the cap attached to the jar.

80 Figure 1 shows a glass jar 11 having a neck 12 provided with a rim 13 and having external screw threads 14. A cap 15, moulded from polypropylene, has a top 16 and a skirt 17. The skirt has internal screw threads 18 for engaging the threads 14 of the jar.

85 A membrane 20 (Figure 2) is adhered in the cap directly to the internal surface of the top 16. The membrane is of disc form and is almost of the same diameter as the internal diameter of the top 16.

When the cap is first attached to the jar, after the jar has been filled, the rim 13 of the jar is first coated with adhesive. The cap is then screwed down onto the jar, so that the membrane adheres to the rim.

90 The bond between the top 16 of the cap and the membrane is relatively weak, so that, on unscrewing of the cap, the bond is broken, leaving the membrane adhered to the rim. The membrane is frangible and can be ripped away from the jar mouth for access to the contents. The membrane may be composed of a metal foil or a waxed paper, for example.

100 The cap can be re-attached to the jar and has an annular sealing member 21, on the internal surface of the top 16 of the cap, which member resiliently engages the rim 13.

105 Within the annular sealing member, the top of the cap has ribs 22, which may be linear or annular, and which are positioned so as not to engage with the jar rim. The membrane is initially adhered to the sealing member 21 and the ribs 22.

110 The adherence is provided by a waxy material a coating of which is initially applied to one surface of the membrane. This coating is heated prior to being applied to the top of the cap, so that, on cooling, the coating adheres to the top of the cap.

CLAIMS

115 1. A cap having a top and a skirt adapted internally to allow repetitive engagement with and release from a container and a flexible sealing membrane for adherence to the rim of the container, wherein the membrane is weakly adhered directly to the internal face of the top of the cap.

120 2. A cap according to Claim 1 including a waxy material heat-sealed to the cap and serving to adhere the membrane to the cap.

3. A cap according to Claim 2, wherein the cap is a polypropylene moulding.
4. A cap according to any preceding claim, wherein the internal face of the top of the cap has ribs to
- 5 which the membrane is weakly adhered.
5. A cap according to any preceding claim, including a formation for sealing with the container rim when the membrane has been removed.
6. A cap constructed substantially as herein described with reference to the accompanying drawings.
- 10 7. A cap and container assembly, wherein the container has a rim and the cap has a top and a skirt, the skirt being engaged with the container for release therefrom and repetitive engagement therewith, and a
- 15 sealing membrane adhered to the internal face of the top of the cap and also adhered to the container rim, the bond with the cap being weaker than the bond with the rim, whereby the cap can be removed from the container leaving the membrane adhered to the rim.
- 20 8. A cap and container assembly according to Claim 6, wherein the cap is constructed according to Claim 2, 3, 4, 5 or 6.
9. A method of mounting a membrane in a cap, which cap has a top and a skirt adapted for repetitive
- 25 engagement with and release from a container, the mounting being such that on engaging the cap on a container, the membrane may adhere to the container rim by means of adhesive, such that on removal of the cap, the membrane is released from the cap and
- 30 remains adhered to the rim, the method comprising applying waxy material to one face of the membrane and heat-sealing the membrane directly to the interior surface of the top of the cap by means of the waxy material.
- 35 10. A method of mounting a membrane in a cap, substantially as herein described with reference to the accompanying drawings.